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JOURNAL
AND
# PHOTOGRAPHIC ENLARGER.
EDITED BY J. HAY TAYLOR.

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## Notices.

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## Notes.

During a recent interview with Mr. Field (optician), of Birmingham, he informed us that hitherto stereoscopic effect upon the screen had been sought out on an erroneous principle, and that, after a long series of experiments, he had solved the problem. At the present time he could only say that the two halves of a stereoscopic transparency were projected by two lanterns on one screen, so as to superimpose as *nearly* as possible, which will of course give a picture with double lines in certain parts. This to the naked eye presents rather a jumbled appearance, but when a small and inexpensive instrument (which is the subject of a patent) is held before the eyes of the spectator, it is said to cause the picture to be seen with stereoscopic effect.

* * *

One of the most ingenious methods of introducing hand-cameras is one we recently heard of. At a large and aristocratic garden party, hand-cameras ready charged were supplied to all the guests, who in the course of their perambulations through the grounds, pulled the triggers or pushed the buttons (as the case may be). In a neat attachment at the side of the camera, each user inserted his card, and in due course received by post a print of each exposure he or she had made, as a memento. It is safe to surmise that a good percentage of the guests after this (perhaps their first introduction to a hand-camera) invested in a photographic outfit, and thus many were added to the army of amateur photographers.

* * *

It is intended to use the lantern at the Board Schools during the afternoons at Brierley Hill for illustrating history lessons. The children will doubtless take more interest in the lessons which are illustrated with the lantern than those in which ordinary schoolroom diagrams and charts are used.

* * *

On the 7th inst. *The Optician* is to slightly alter its name, and will be known as *The Optician* *and Photographic Trades Review.* As this enterprising paper is already the organ of the optical, mathematical, philosophical, electrical, and nautical industries, it should have a pretty wide field now that it is also to include matters pertaining to the photographic trade.

* * *

The Photographic Convention of the United Kingdom will be held at Edinburgh, from 11th to 16th July.

* * *

One of the correspondents to *Modern Society* says: "Little Princess Alice Mary of Albany was not allowed to have a saddened birthday because of grandmama's recent bereavement. That little lady completed her eighth year on the 25th of February; and the festival was kept by a grand magic-lantern display in the St. George's Hall. That splendid old hall of the Knights of the Garter presented a pretty spectacle arranged as it was for this entertainment for the Queen's grandchildren: for, of course, the Duke of Albany and the three elder Battenbergs participated equally in the small dissipation, as well as in the high nursery spread that followed it. The pictures projected were mostly illustrations of the nursery rhymes and fairy tales and the comic slides so dear to the hearts of all children, and they were received with many a hearty laugh and gleeful expression of delight by the Albanys and Battenbergs."

* * *

Upwards of two thousand bromide prints—copies of all obtainable pictures relating to the discovery of America—are being prepared by the United States Government for the World's Columbian Exposition.

* * *

The Sixth Annual Photographic Conference in connection with the Camera Club was held from the 22nd to 24th ult., at the Theatre of the Society of Arts, under the presidency of Capt. W. de W. Abney. The programme issued was very comprehensive, and included papers by Messrs. Abney, Armstrong, Bothamley, Blackburn, Humphrey, Pringle, Robinson, Stannus, Van der Weyde, Warnerke, and Willis; also the exhibition by Mr. Spurge, of his new safety gauge for cylinders (see *Optical Magic Lantern Journal* for Jan. 1, 1892). On the 23rd ult. the annual dinner took place at the Monico Restaurant, and on the following evening an exhibition of lantern slides was given at the theatre (Society of Arts). Until the 13th inst. the annual exhibition of photographs by members will be on exhibition at the Camera Club, Charing Cross Road; admission by card from any member, or ticket from the hon. sec.

## How to Make a Binocular Lanternescope.

In our issue for January 1, 1891, we described what may be termed a binocular lanternescope, and have since that date replied to numerous inquiries respecting its construction. As the stumbling-block appears in most cases to have been in the adjustment of the double sets of lenses advocated, we made one with prismatic lenses only, which we exhibited at the London and Provincial Photographic Association on Mar. 3, at which meeting it was highly commented upon. Since that date we have received a number of letters asking for particulars of this instrument, and, instead of replying in Notes and Queries column, have decided to give a few sketches and particulars, so that those who are mechanically inclined will have no great trouble in constructing the apparatus for themselves.

To those who are not conversant with the names of lenses, *prismatic lens* may perhaps have rather a formidable sound; but when we explain that they are such as are used in ordinary stereoscopes, all difficulty of when and how to obtain suitable lenses will vanish.

In order to make the instrument as nice as possible, such wood as mahogany may be employed; this can be obtained (seasoned and planed for fret-saw work) of three-sixteenths of an inch thickness, and a foot and a-half square of this will be ample.

A very convenient carrier for the slides is the ordinary *lightning* lantern-slide carrier, and we will presume that such is to be used for this purpose. A carrier of this form is shown in Fig. 1.

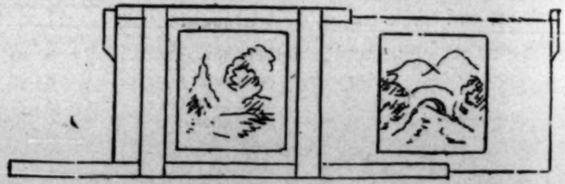


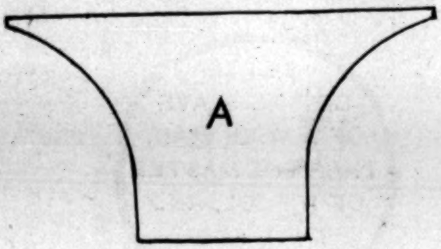
Fig. 1.

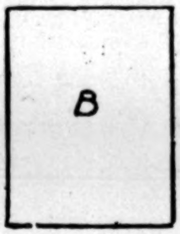
These are in most cases made 12in. long and 4½in. high, and it is on this understanding that the various measurements have been determined. When cutting out the various parts a little allowance should be made for planing and smoothing the edges, so if the measurements are made *full* this will suffice.

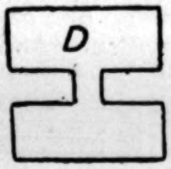
The base (A) is made 12in. by 6in. by 4½in., and upon this at the wide end the carrier (Fig. 1) is glued.

The sides (B), which are 4½in. by 5½in., are then fastened on the base and uprights of carrier, so that they will come flush with the sides of the narrow end of the base, after which the top (C), 4½in. by 6in., is placed in position: this is allowed to extend flush with the outside of the carrier at the top.

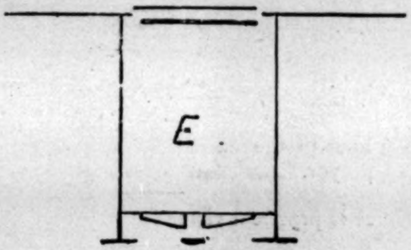
We have now a box open at the front, and are ready to adjust the lenses in place. To do this we must take a piece of wood (D) 4⅛in. square, which will be found to fit into the box, and cut it as shown, so that the prisms will not drop through when laid flat over the opening. In order to secure the prisms a small strip of wood can be glued immediately above and below the openings, and the lenses seated therein by pitch, or Prout's elastic glue. The prisms are laid flat upon this, with their butt-ends together, but separated a little. Of course one will naturally place a slide in position, and try the effect before securing the glasses in place, so there is little fear of going wrong in the matter of adjustment.

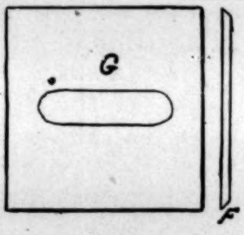


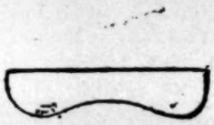




After the prisms are in position the partition upon which they are mounted is fastened just inside of the box (as at E). Four strips of wood (F) should be glued close to edges of box at front all round: this is partly for appearance and partly for strength, and affords a good hold for screwing the front to. It is better to screw this on instead of gluing it, as it enables one the more readily to get at the lenses if desired.







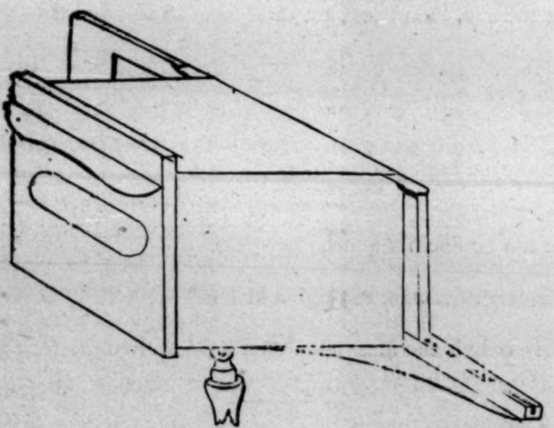


FIG. 2.

The front (G) is 5½in. square, and has an opening—say, 3½in. by 1in. It is well to place over this, in the inside, a thin and clear lantern-slide cover glass, so as to keep dust from the lenses. The front being screwed on, it only remains to glue the piece H a little above the opening in G for a rest for the forehead.

The use of a little glass-paper at the corners, and the application of varnish or French polish, completes an instrument (Fig. 2) which cannot fail to be interesting for those who may wish to view lantern slides.

It only remains to insert a piece of ground-glass or flashed opal into the end to form a background for the pictures, and mount the apparatus upon a stand, so as to raise it the requisite height from a table.

——:o:——

AT a meeting of the Bath Photographic Society Dr. Preston King described "Rudge's Biophantascope." The biophantascope is an adjunct to the magic lantern, by means of which animals depicted on the screen can be made to move with life-like accuracy. In the machine shown there were a number of photographs on glass of a man's face taken with different expressions. By throwing the light of the lantern alternately through first one and then another of these various photographs each image falls upon the same portion of the screen as the preceding one, and without any intermediate loss of light; thus the life-like movement of the portrait is obtained.

## How I Utilise Gelatine.

By Albert Tranter.

The way in which I do so is to produce as lantern subjects such things as conundrums, *bon-mots*, and great thoughts, by writing them on gelatine plates with a fine pen and Stafford's carmine ink. The smooth side of the square of gelatine should first have some pounce rubbed over it, so to make the lines come out as sharp and crisp as possible.

I use the particular kind of ink mentioned in preference to others, as it takes to the gelatine better than the ordinary ink, which I think has a different base, Stafford's having, I understand, some sort of spirit as its base.

By a very little outlay of time and money some very entertaining and effective slides can by this method be prepared at home. The *bon-mots* from our comic journals will be found to afford a considerable amount of amusement when carefully prepared and shown in such a way, but of course they must be sufficiently short to go within a three-inch circle.

The great thought slides to be so prepared are naturally of a more serious character, and of much more moment. They comprise thoughts culled from the works of all the great writers and thinkers of the world. A great number are to be obtained from such sources as the works of Shakespeare, Tennyson, the Rev. Page Hopps' volume of *Readings* (consisting of selections from, besides the Bible, such sources as the Koran, the works of Marcus Aurelius, &c.), the publications entitled *Great Thoughts* and *Great Thoughts on Great Truths*, Routledge's volume of *Familiar Quotations*, and generally from any source where thoughts of such a character are obtainable. And I cannot help thinking that the exhibition of such slides as those last mentioned is calculated to do a considerable amount of good—there being something so pointed and concentrated in such aphoristic expressions as those obtainable from such sources as those to which I have referred. To be sure, by their being prepared as tinted photographic slides, the *letter* could be much more attractively presented, and the beauty or excellence of *that* certainly greatly recommends the *spirit* of such things; and the same principle holds good as regards many others.

I cannot help thinking, too, that a great many lanternists would be glad to be able to obtain such slides as those last mentioned, either on sale or hire, if they were produced at such a price as to put them within the reach of the "thousand."

Anent the value of such slide subjects as those last mentioned, I may, I think, appositely quote the words of George Herbert: "A text may find him who a sermon flies."

I append a few texts and maxims which are very suitable for the purpose I have mentioned, one of which is set in the form required for a lantern slide—viz., in a circle. Of course other shapes can be employed, but I think the circular form has a more pleasant appearance when on the screen.

"BETTER
BE THE SLAVE
OF A WISE MAN,
THAN THE MASTER
OF A FOOL, AND
THAT FOOL
ONESELF."

"Let truth prevail, though the heavens should fall."

"Virtue is the only nobility."

"Nothing is beautiful, but the truth."

"Evil be to him who evil thinks."

"Perfect liberty is not the freedom to do as we like, but the freedom to do as we ought."

"When faith is dead and honour dies, the *man* is dead."

"He who persecutes a good man makes war against himself and all mankind."

"One hour in the execution of justice is worth seventy years of prayer."

"Justice is practical virtue."

"Rebellion to tyrants is obedience to God."

"To thine own self be true; and it must follow, as the night the day, thou canst not then be false to any man."

"True happiness consists not in a multiplicity of friends, but in their worth and choice."

"It is a noble and great thing to cover the blemishes and to excuse the failings of a friend."

"Some men are too ignorant to be humble, without which there can be docility and no progress."

"To err is human, to forgive divine."

"He only is the ideal man who has acquired perfect control over himself and all that is base within him."

"Kind hearts are more than coronets, and simple faith than Norman blood."

"Naught shall make us rue, if England to herself do rest but true."

# Ether Oxygen Light in India.

By Col. T. Deane (Simla).

I recorded my experience with this light in the issue of this Journal for June, 1891, and said that I was about to try Mr. Scott's warm-air saturator. I observe that Mr. Scott has published an interesting atticle on "Safety with Saturators" in the Journal for January, 1892, and as my previous remarks showed that I considered them to be unreliable, I would like to state what further experience I have gained in the matter.

Mr. Scott details three conditions as essential to using the saturators with safety. 1st, Sufficient pressure with gas. 2nd, A protected jet, and 3rd, A high degree of saturation. I do not think that I have very closely attended to any of these conditions, and yet I am bound to say that, whilst using his saturator *with a single lantern*, I have never had any "pop" or difficulty of any kind whatever, and that the light obtained has been most brilliant and satisfactory. There is no doubt, however, that all the conditions referred to by him are sound, and that any one who observes them need have no fear of using his saturator with safety.

When the saturators have occasionally failed with me, I attribute the cause to my making use of them for more than one lantern with a star dissolving tap. The reason why a dissolving tap does not suit a saturator is clearly explained by Mr. Scott, and I entirely agree with him that the first safeguard is broken down when they are brought into use with this instrument. It is better, therefore, to use the saturator always with a single lantern, though I have occasionally used one in this country, with dissolvers, without the occurrence of any difficulty, but I can quite understand having been on the verge of encountering one, in the way of a "pop," but nothing more serious.

In the *British Journal of Photography*, for Dec., 1891, Mr. W. Brooks has shown in a very explicate manner how it is that, when using mixed gasses, the ordinary trade star dissolver is apt to prove at fault, and I can fully endorse his views on the subject. I should like to know, however, what are the remedies he proposes for these defective instruments, and where the reliable dissolvers referred to by him as being perfectly satisfactory are to be obtained.

He refers to the "wretched saturators" in rather a condemnatory manner, but I think they are perfectly safe with single lanterns and with ordinary care. I have used one for lime-light purposes with a cylinder of 125 cubic feet and a "Beard's" regulator until the whole lime became brilliantly incandescent and the jet "roared" for half-an-hour, but without any accident or explosion. This was with Ives saturator; but Mr. Scott's warm-air saturator I consider the better, though I do not clearly understand why, as it gets very little warmth from a "fairy" or night light. I think this saturator should be made to open, so that it might be possible to inspect, or dry out, the porous stuffing.

To those who use the saturator I would add a few additional suggestions to those that Mr. Scott has detailed.

Confine its use to one lantern only, and do not dissolve with it.

The ether must be good, a specific gravity of 0·725 I find best, though I observe that Mr. Lewis Wright, in his admirable book on "Optical Projection," recommends specific gravity 0·917 to 0·920.

Throw away the ether after once using it; better not use it twice.

Rubber tubes will not last long with its use; change them when they show signs of deterioration and use them as thick as possible. The jet nipples should be small, and used close to the lime. If these conditions, added to those detailed by Mr. Scott, be attended to, the light can be burnt with safety, even without silent combustion, and with results which, I believe, are more brilliant than those given by the ordinary lime-light, and mixed jet, even if pure hydrogen be used.

I think it is a pity that those who sell saturators do not plainly state that they are unreliable for use with dissolvers. For single lanterns they are really good, and invaluable where coal-gas or pure hydrogen is not procurable. However, purchasers are left to find this out for themselves, and possibly before their experience is ripe, they will have condemned "the wretched" instrument as worthless, which is scarcely fair.

* * *

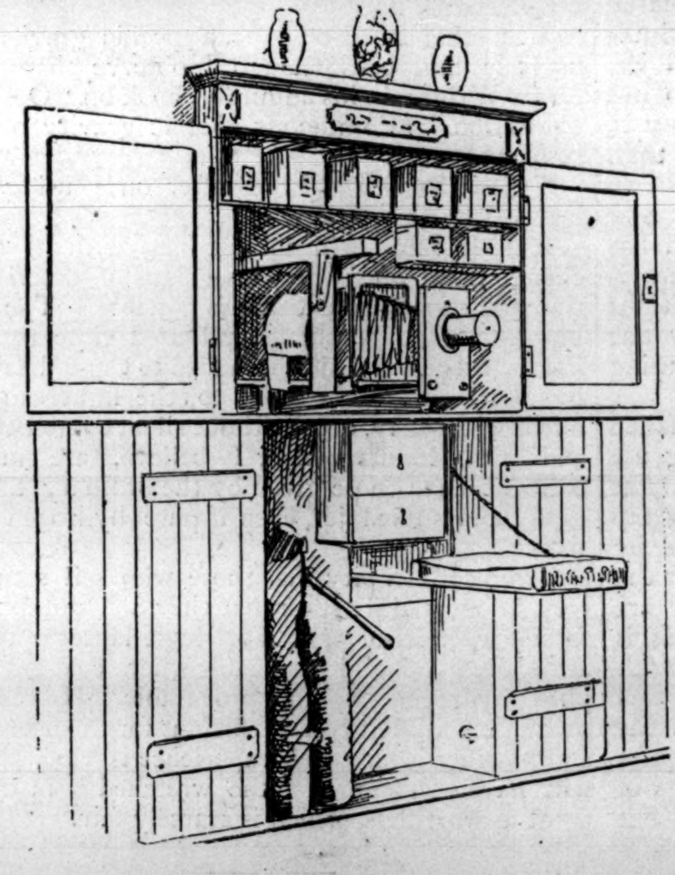
# The Lantern in School.

By John C. Oliphant, M.A.

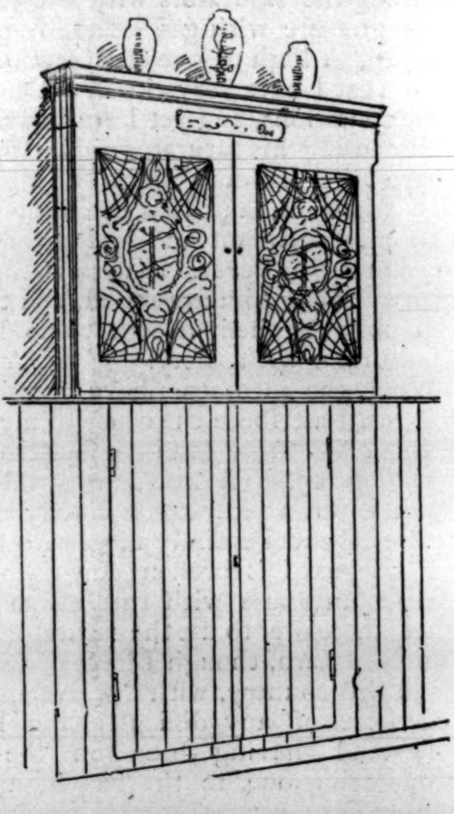
The chief drawback to the regular use of the lantern in school is not so much the trouble of using it, as that of fitting it up each time it is wanted in a class-room that has to be used for other purposes. In a boys' school much of the work can be done by them; but for girls, most of it is rather hard.

The arrangement I am about to describe has just been completed in an Edinburgh school, and by it the lantern is always ready for use, and yet quite out of the way.

The back wall of the room, behind the forms, was first hollowed out to the depth of eight inches, so as to form a double cupboard seven feet high. At one side of the upper part there is a hinged bracket of oak, and from this the lantern hangs by means of a forked piece of iron gripping its sides. A touch swings the bracket out when wanted, and it is clamped in position by the turn of a screw at the top. The whole arrangement is perfectly rigid, although the lantern is a heavy one. The instrument itself, as will be seen from the illustration, is of somewhat novel construction, the peculiarities being partly determined by its unusual position. The general design is that of one form of Hume's Cantilever Enlarging Apparatus. It will be seen that the front carrying the objective (Dallmeyer's six-inch) rests on sliding-tubes. On these also the carrier is clamped, so that the distance may be varied according to the size of the picture on the slide.



**Ready for Use.**



**Closed.**

The condenser is a triple one (the first made by Newton from the designs of Mr. Traill Taylor), and measures five inches.

The burner is screwed, once for all, in its proper position in the small body of the lantern, which slides on the backward prolongation of the same tubes that carry the front. The taps and lime-turner are thus worked, not from the back, which is closed, but from underneath.

The carrier is of the ordinary double oscillating form; but I think I have improved upon it by removing the top of each slide-holder (at the same time strengthening them at the foot), and then cutting away one side of the rebates an inch from the top. The slides can thus be easily slipped in in the dark, and need not be touched except at the edge. I may mention that I have for some time used only bookbinders' cloth for binding slides. It is more troublesome to put on, but looks very better, and is more permanent.

The shelves above the lantern hold the slide-boxes, which are of tin, lined with baize. The lower part of the cupboard holds two gas cylinders on one side, and on the other a folding seat for the operator. Above the cylinders is a double tap, by which both gases can be turned off together without disturbing the adjustment of the taps at the burner.

The screen is one of Mason and Payne's (the only really opaque one I know), and hangs from a cord stretched across the room near the ceiling. It is easily rolled up and detached when not wanted.

The upper part of the cupboard is dark oak, with unpolished mahogany panels, and a motto in beaten brass-work. The lower doors are simply part of the pitch-pine lining of the wall.

The working of a lantern cannot, as things are, be made an altogether easy matter, but with some such arrangement as has been described the purely mechanical labour at least is reduced to almost nothing. At the same time the installation, instead of disfiguring the room, as might have been expected, is when closed up decidedly ornamental.

:o:

## The Lanternist's Den.—No. 2.

BY C. E. RENDLE.

### SOLDERING.

SOLDERING is such an every-day accomplishment that an apology is needed for its introduction here. But I think a few hints on the subject may not altogether be out of place, more especially as the reader has now his own place in which to work, where he can often practise what he thinks he will, away from the eager gaze of the curious and critical.

Some short time ago I noticed in a window, "The complete soldering outfit," at the modest cost of sixpence. "A cheap present," thought I to myself, "for one of the boys." So I entered the establishment and asked to be shown the "complete outfit." Disappointment, however, was my reward, as I was handed a card on which was tied a strip of pewter solder, a very small bottle of fluid, and a miniature-looking poker. There was just sufficient of these three to make one expostulate in his solitude as to his sanity in purchasing a toy, for the solder and fluid might, with a struggle, run round the lid of an ordinary saucepan, but the poor little iron would have had to undergo so many heating operations as to make the whole process useless. By the way, it may only have been intended for tacking together a child's tin soldier.

### PEWTER SOLDER.

To be accurate, solder is employed for the purpose of cementing, binding, or uniting together, edge to edge, or surface to surface, by the aid of heat, metals of less fusibility. The metal may be—tin, brass, copper, silver, gold, or what you will, the rule applies to one and to all alike.

The solders used in lantern construction are but three, those we call pewter, spelter, and silver. Each can be bought ready for use, but an analysis of their component parts and means of preparation may be of interest. Pewter is commonly called soft solder, because of its use on substances so much harder than itself. The melting point is extremely low compared with those which will hereafter be dealt with. It oftentimes proves a pest to the worker in precious metals, inasmuch as it adheres to gold or silver when burnt on, its eradication is most difficult, and the beauty of many a costly ornament has been marred by it, when falling into inexperienced hands.

To make soft solder—Take of pure grain tin two parts, say 2oz.; of pure lead, one part, say 1oz. The melting temperature of lead is about 610deg. Fahr.; of tin, 440deg. Fahr. Put the lead into a small iron ladle on a clear fire; meanwhile the *grain* tin may be getting hot on the hob, or other convenient place. When the lead has properly melted (and be careful that it does not burn), drop into it, by degrees, the hot tin, stirring the while with a piece of wood, which will greatly facilitate incorporation, and when thoroughly mixed, remove from the fire. With a piece of flat wood skim from the surface any dross that may have collected, allow it to cool down to below ignition point (that is to say, if a piece of paper refuse to ignite when stirred into the molten metal), pour slowly and steadily into strips upon a clean hearth. These strips, when cold, may be hammered flat to the required thickness for use. If poured very thick, the flattening process will make it hard, and it perhaps may break and crack, but this can be avoided by annealing. "Anneal lead?" you say. Certainly. Why not? Rule flat to half thickness, place over a gas flame a piece of sheet iron on which lay your solder. As soon as hot enough for a drop of water to hiss from it, let cool slowly, when it will be found again quite soft and perfectly annealed. Flat again to half thickness, again anneal, if necessary, and so on. We have now a sound and reliable solder, which can be best kept clean in a tin canister for use when required.

### SOFT SOLDERING FLUID.

There are several agents which stimulate the flow of soft solder. Resin, tallow, venus turpentine, chloride of zinc, &c.; the last-named being the cleanest, most convenient, and easiest to work we will adopt it. Take hydrochloric acid (spirits of salts), five parts; metallic zinc, two parts. Cut into small pieces the metallic zinc (which must be clean) and put into a small earthenware pipkin, or similar vessel, over which pour your acid. The chemical action of the acid will at once be apparent, and the scrap becomes dissolved with an evolution of hydrogen gas. The fumes being offensive, it is advisable to place it on the hob, or outside the window. When all action has ceased, drop in one or two more pieces of zinc to ascertain whether any energy be left in the salts, and if not, filter through rag into a bottle. This will keep for any length of time. I will just say —for soldering steel add a little powdered sal ammonia; this gives greater strength to the joint.

### SPELTER AND SILVER SOLDER.

These are generally employed for what is termed hard soldering or brazing. It is necessary to use a high temperature for this work (as shown in the table mentioned below), and it will be requisite to gauge the heat at your disposal.

When one has the means of making up a good coke fire, fierce enough to render a piece of brass 6in. square a good cherry heat, one has nothing to fear, and a little practice is all that is required to enable the user to perform any soldering he may require.

I give a table of four qualities, together with their fusing points, so that the reader may decide which will best answer his particular requirements; but it is well to remember that the better the quality the greater the durability, although it is perhaps better at first to use one at low temperature, which fuses easily, than those which require experience in working.

HARD SOLDERS.

| | Fine Silver. | Copper. | Spelter. | Melting Point. |
|---|---|---|---|---|
| 1. Hard...... | 16 parts. | 4 parts. | — | 1·866 Fahr. |
| 2. Medium | 15 „ | 4 „ | 1 part. | 1·843 „ |
| 3. Easy ...... | 14 „ | 4 „ | 2 „ | 1·818 „ |
| 4. Very easy | 11½ „ | 6 „ | 2½ „ | 1·802 „ |
| 5. Spelter ... | — | — | — | 773 „ |

Let us, by way of illustration, make up a small quantity of No. 3, which is well recommended: Take fine silver, 28 grains; copper, 8 grains; spelter 4 grains. Make a hole about the size of a sixpence in a piece of charcoal and into it place the silver and copper, together with a piece of borax about the size of a pea; then, with the blowpipe and gas-flame melt together, after which add the spelter, continuing the blowing until it is well amalgamated. When sufficiently cooled, this small lump may be boiled in a solution (consisting of vitriol, 1 part; water, 8 parts), which will speedily free it from the borax. It must now be flattened by hammering, and should occasionally be annealed by making red-hot on the charcoal.

### FLUX.

In order to make a flux for hard soldering, rub a piece of lump borax up with water on a clean slate until it is of the consistency of thick cream; this will form a flux for either of the solders mentioned in the table.

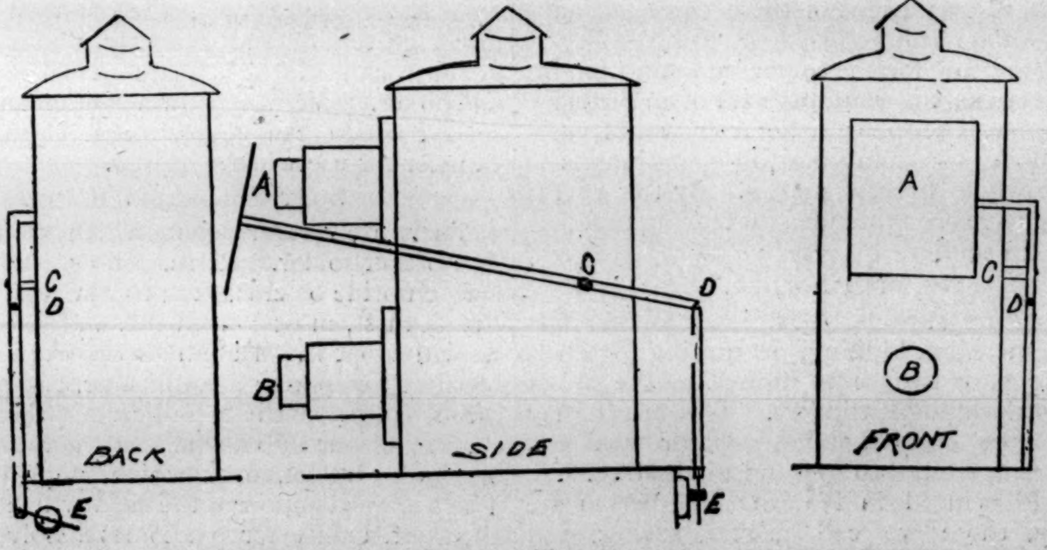
There is one more word of advice upon this subject, and that advice, which is all important, is —cleanliness throughout is imperative.

—:o:—

## Instantaneous Dissolving.

By H. M. UNDERHILL.

In his interesting paper on "Dissolving Views" I think that Mr. Baker is right in saying that the public like these "effects." The severe purist, with his grey photographs, is, after all, in danger of becoming somewhat wearisome, and such an effect, for example, as the gradual change from summer into spring, produced by slowly "dissolving" one slide into another, is very pretty. But I think that when one view is "dissolved" into something quite different by lowering one light and turning up the other in the usual way, the effect of one picture being, as it were, "seen through" another, is particularly unpleasant. The dissolving of a pair of oil lanterns with their fan is something quite different. There the pictures really "dissolve"—break up, and reappear; and you never see both pictures at once. Even if with lime-light you turn the dissolving



tap quickly, the "off" picture stays on the screen for a perceptible space of time; and this appearance has always very much annoyed me. About two years ago I went to a lantern exhibition, where the lecturer used an ordinary bi-unial lime-light lantern. But he kept both lamps full on all the time, and dissolved with a fan moving up and down, covering first one lens, then the other. The effect on the screen was charming: one moment there was one picture to be seen, the next moment it was another. The change was so quick, so instantaneous, that it eluded the eye, and all one could see was a kind of flash on the picture, and lo! it was different.

But some one will say, what a waste of gas to keep both lamps going all the while; and besides, one's slides are exposed to the heat for twice as long a time, and over-heated slides will sometimes crack in cooling. Quite so, but any one who disregards expense and does not mind risking his slides, cannot do better than "dissolve" in this way, and he can have instantaneous or slow dissolving quite at will. But wishing to produce this splendid effect, and being equally desirous of saving my gas, I thought the matter over, and soon lit on a very simple plan for combining both these things. I simply use a fan jointly with a dissolving tap. The fan covers the "off" lantern lens, and the tap turns down its light. The fan is connected by a hinged wooden rod to the dissolving tap, and being fastened to one end of the lever which turns it, when I turn the tap the fan moves simultaneously. The result is that there is none of that unpleasant fading out of the "off" picture—it is gone instantly and completely, and if you let a little more oxygen than usual through the by-pass, the lime lights up full directly, and there is no falling of the light. Of course this arrangement does not prevent your having both lamps full on when you want them, and you can also dissolve just as slowly as you please for a transformation effect.

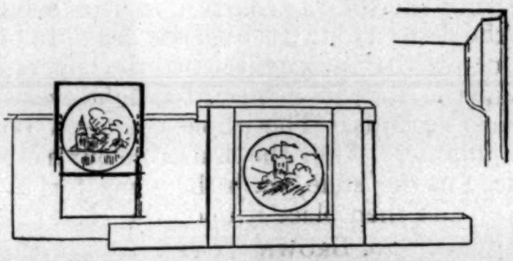
The accompanying diagram will, I think, sufficiently show the apparatus. The rod must be allowed a little play at the pivot, because the end of the tap-lever moves in an arc of a circle, so that the rod is prevented from having a perfectly perpendicular up-and-down motion. The rod in no way interferes with removing the slides, and the fan should be made as light as possible, otherwise its weight may turn the tap when it is not wanted to be turned. No doubt modifications will be necessary to suit the pattern of other lanterns, but all you have to contrive is that the turning of the dissolving tap shall at the same time shift the fan from one lantern to the other. If this tap is screwed on to the lantern body, it will be better to remove it and fix it to the box, just a little to one side, as shown in the drawing. My tap was originally on the lantern, but the pipes got so much in the way when I was adjusting the jets, that I removed it and fixed it to the box.

Many people who see this arrangement for the first time, say to me, "How well your lantern dissolves!"

——:o:——

## Improved Carrier.

In the semi-darkness that is usual at a lantern exhibition one sometimes experiences a difficulty in readily inserting the slides into the slot of the ordinary lightning form of carrier. Mr. J. C. Oliphant, in the course of school demonstrations in Edinburgh, found this difficulty a great hindrance to successful manipulation, and has devised an alteration of the carrier, which, like most good things, is very simple. As this gentleman has kindly forwarded for our inspection a carrier altered to suit his requirements, we have pleasure in showing how the improvement may be made.



The upper portions of one side of the *to and fro* carrier immediately above the slide opening are first cut completely away, after which the upper part of the rebates are trimmed flush with that portion in which the slide is inserted, an arrangement which will be readily understood by a glance at the cut.

In order to place a slide in the carrier it is only necessary to press it against the upper part of the opening, and allow it to descend into its place.

——:o:——

## Toning Slides with Uranium Salts.*

### By Alfred Stieglitz.

Experiments in toning slides with uranium salts have led me to adopt the following simple working methods:—

Give full exposure, and develop with any ordinary developer until the slide looks somewhat flatter than it is to appear when finished; in other words, the highest lights must have a silver deposit in them, and not be clear glass. After having fixed the slide in hypo in the usual way, wash thoroughly under a tap for a few minutes, the elimination of the hypo being of importance to insure success in the toning operations.

---

* Read before the Society of Amateur Photographers of New York.

Make up the following three stock solutions, which can be done in a few minutes, and keep indefinitely :—

No. 1.

| | |
|---|---|
| Uranium nitrate | 1 part |
| Water | 100 parts |

Filter in case the solution is not clear ; this is generally unnecessary.

No. 2.

| | |
|---|---|
| Ferricyanide potassium | 1 part |
| Water | 100 parts |

No. 3.

| | |
|---|---|
| Ferrichloride | 1 part |
| Water | 10 parts |

Now you have everything necessary for toning, and proceed as follows :—

*a*. CHOCOLATE-BROWN TONES.

Take ten parts of No. 1 and one part of No. 2, and permit the slide to remain in this solution until the desired tone has been reached. In order to control the procedure of the operation, examine the slide in transmitted light every ten or fifteen seconds. The whole operation rarely lasts a minute. After the desired colour has been produced in the slide, wash the same for a few minutes, and then place it upon the rack to dry.

*b*. BROWN TONES.

Take five parts of No. 1 and one part of No. 2, and proceed as in *a*.

*c*. REDDISH-BROWN TONES.

Take equal parts of Nos. 1 and 2, and proceed as in *a*.

*d*. RED TONES.

Take one part of No. 1 and two parts of No. 2, and proceed as in *a*.

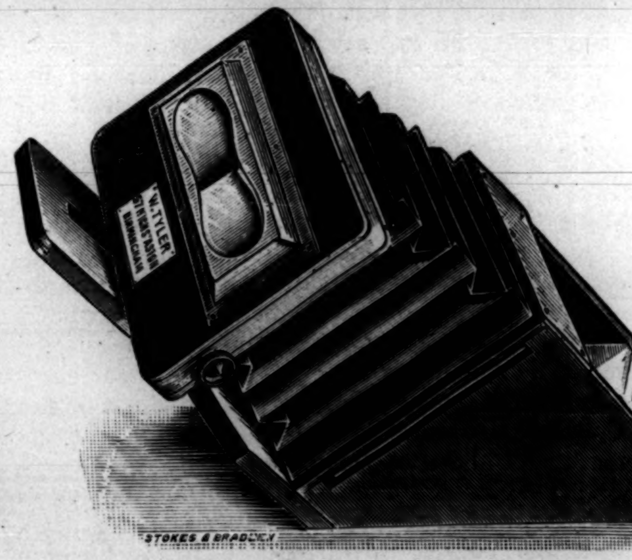
In order to keep the high lights clear in this operation, a few drops of glacial acetic acid solutions added to the toning solution may be used to advantage. I myself never use any though, not deeming it necessary if the toning operation is carefully performed.

*e*. GREENISH-BLUE TONES.

Take equal parts of Nos. 1 and 2, and tone the slide until it is of a very dark colour, and very dense. Rinse for three or four minutes, and then plunge into a solution of one part of No. 3 and five parts of water, in which solution the slide is allowed to remain for at least five minutes. It is then washed and dried, drying out in a greenish-blue. (*To be continued.*)

## Editorial Table.

TYLAR'S MONOCULAR AND BINOCULAR LANTERNESCOPE. — Mr. Tylar, of Birmingham, explains to us that although it was announced in our columns fourteen months ago that he intended shortly to introduce a binocular lanternescope on the lines mentioned in our issue of Jan. 1, 1891, he had been so busy with other subjects that he had only just been able to introduce them. He has also made an improved style of single lanternescope, in which a reflector is attached to the instrument, and this also forms the stand. This arrangement enables one to use it without having to point it to the light; no special lighting arrangements are thus required. There are no projections from the sides. There is a slide adjustment of great range for focussing, and the pictures appear with great amplification. The binocular form is very similar to the monocular, but is, of course, made sufficiently large to enable two prismatic lenses to be used. These are adjustable both for the width of the eyes and for focus. These two classes of instruments are made either with or without stands.



PRICE LIST.—The Thornton-Pickard time and instantaneous shutter has lately had several improvements added to it, which it is now claimed "is as perfect as anything can be." We observe from their catalogue that this shutter is fitted behind the lens in their new Ruby Camera. These shutters are made in a variety of styles, for time or instantaneous exposures, and for hand and stereoscopic work. Special lenses, exposure meters, and other photographic specialities are to be found in this catalogue.

NATURAL PHENOMENON IN ICE.—A lantern-slide, which is both interesting and curious, has been received from Messrs. Martin and Co., 4 and 3, Park Villas, New Southgate, N. It appears that this remarkable group of crystals was produced at Christmas, 1891, in a 10in. by 8in. dish of New River water, quite spontaneously, no process or artificial aid having been resorted to to induce the formation. A film of ice was observed floating somewhat loosely in the dish, and, on being lifted carefully, disclosed on the under side this marvellously-beautiful floral design. The delicate lace-like edging of the glacial tracery is the result of the deposition of hoar-frost while draining off the water from the ice-leaves and flowers and fixing the image in the camera. The leaves and flowers appear to stand out in relief as in Nature, an inch in advance of the background, which formed the superficial film of ice while in the dish. A number of lantern-slides of this curious subject have been prepared by Messrs. Martin, who will supply them post-free for 1s. 2d.

——:o:——

## Correspondence.

### PALE BLUE GLASS WANTED.

[*To the Editor.*]

SIR,—Can you tell me where I can get different coloured glasses, such as pale blue, for magic lantern, for throwing different colours on the screen? I have tried several firms, including glass-cutters, and all tell me that they cannot supply me. I can get the *deep blue*, but, although I use compressed gas, the light does not sufficiently penetrate it.—Yours respectfully, M. LOWE.

[Perhaps one of our readers can supply the information where this glass can be obtained in this country. We think it is obtainable in France.—ED.]

### THE PHOTOGRAPHIC CONVENTION OF THE UNITED KINGDOM.

[*To the Editor.*]

DEAR SIR,—I have the honour to inform you and your numerous readers that the next Photographic Convention of the United Kingdom will be held at Edinburgh during the week beginning on July 11 next. The hall of the Geographical Society in the National Portrait Gallery, Queen-street, Edinburgh, has been secured for the meetings.

Later on I shall have the pleasure of sending you further particulars of papers, excursions, &c. In the meantime, I will be glad to receive the names of intending members.—Yours faithfully, F. P. CEMBRANO, jun.,
10, Cambridge-gardens, Richmond, Hon. Sec.
Surrey, March 10.

### PAPER LANTERN SLIDES.

[*To the Editor.*]

DEAR SIR,—In reply to letter of Mr. J. D. Fisher, in the March number of your Journal, in which he asks us if we mean that transparent paper cannot be used for making pictures upon excepting by our sanction, and if so the sooner we get rid of that opinion the better, we think it will be sufficient to state that our note to you, and which appeared in your February issue, was meant as a friendly warning to people that our patent did exclusively cover all transparencies made on paper, glass, or otherwise, which were printed, lithographed, or photographed, and which were rendered transparent by means of creosote, alcohol of colophony, solution of gelatine, &c. Mr. Fisher, or anyone else, is at perfect liberty to manufacture or import pictures produced by this process, only we shall, of course, exercise our rights in the matter to stop them and obtain damages. We have spent a large sum in bringing this process to perfection in conjunction with a German firm, and it is scarcely likely we are going to permit others to step into the field now the process is complete, and Mr. Fisher will find our rights freely protected on applying at the Patent Office. The Germans themselves know they cannot export to England, as we hold exclusive rights for this country, and a large English firm have also given way after inquiry into the matter.—Yours faithfully, THEOBALD AND CO.

### THE INTRODUCERS OF DISSOLVING VIEWS.

[*To the Editor.*]

SIR,—In your Journal for March 1, Mr. G. R. Baker gave a paper on the subject of dissolving views, but when speaking of the names of the introducers my name was omitted. It should be thus "Messrs. Childe & Hill," the two names being identified with the invention and all effects.—Yours truly, W. R. HILL.

——:o:——

## Notes and Queries.

*P. S.* In the absence of further particulars, we should surmise that the melting of the back portion of the candle in your reading lamp was either owing to the inside of the box being left bright, or by the use of a reflector, which reflects the heat *à la* Dutch oven.

*G. McKenzie.*—In Mr. L. A. Vicary's question (the first in last issue), there is a printer's error: it should have been "with convex side nearest the light," instead of "nearest the lens." Thanks for your letter.

*B. B.*—Your query was correctly answered about your reflector, you said it had become of a "blue-black colour," so we advised that it be cleaned; now you state that it is copper colour, if that be so, the silver has worn off. Better have it electro-plated again.

*T. C., J. Jarvis, L. M. R., Binocular, Abbott, Prismatic, Slides, G. Benson, H. Dickinson, B., Robert Taylor, Subscriber, L. P., Ch. Dawson.*—Your questions are all answered in our article in this issue, "How to Make a Binocular Lanternescope."

*A. B.*—We can only advise you to advertise for what you want. The address you require is 78, Fleet-street, E.C.

*Economy.*—(1) Keevil's lantern was for producing dissolving views with one illuminant. The lantern has two noses or fronts, each with a condenser. One front points direct to the screen, whilst the other is at right angles; this latter is fitted with a prism, which causes the rays to be projected on the same screen as those from the lens of the other front. The light is rotated so as to bring it in the axis of the condensers alternately, the same movement causing a fan dissolver to cover one lens, whilst it uncovers the other. (2) We do not know where you can get such a lantern, but we think that Messrs. Archer and Sons, of Liverpool, have a lantern on somewhat similar lines.

*R. T.*—Your form of lamp is really very ingenious, and if it would answer, would certainly be "the very thing for country lecturers"; but unfortunately such an arrangement would only heat the lime to redness. We take note of what you say about never having tried it, and agree with you that it would be very convenient to make one light serve instead of oxygen and hydrogen. Your idea, with more elaboration, was introduced in Germany some ten or twelve years ago, but was not a success. It consisted of a jet of heated air being blown at considerable pressure through a flame of hydrogen on to a lime. If you like to write a short account of your style of lamp, and make a rough sketch, we can insert it, and perhaps it may be the means of one of our numerous readers evolving something practical out of it.

*A. Curtis* writes: "If I have a picture 5in. by 4in., and enlarge it until it is, say, 10in. by 8in., is it enlarged two or four diameters?" *Answer.*—Two diameters, but four times the superficial area.

*X. Y. Z.*—We do not know the particulars of the process employed by Messrs. Wilkinson and Co. for making their slides.

*Ignorant* writes: A short time ago I saw some lanterns at Stevens' Auction Rooms, Covent Garden, in which there was a lot of clockwork which appeared to be connected with the lime pin. Is this something new, and what is its use? *Reply.*—We presume you have reference to clockwork for turning the limes. This has been in use for a number of years, but very few were made.

*J. Jeffrey.*—We thank you for the suggestions, but we do not at present see our way clear to adopt them.

*F. Radley, jun.*, writes: "Would it be possible to conduct the singing of a large choir by means of a mechanical slide in the lantern? I wish to have some singing at intervals during a lantern entertainment, but do not want to waste time in having the lights turned up and down, and the waving of my baton would not be perfectly seen, so I thought that I might just slip some simple arrangement in the lantern, but don't know how to make it. Can you suggest any simple thing?" *Answer.*—We do not think there need be any trouble in conducting a choir from and by means of the lantern. Take an ordinary wooden lantern slide frame, and make a strip of brass sufficiently long to reach from a short distance outside of the frame to nearly across the opening where the slide is usually placed. Make a small hole midway between the ends of rod, and screw it loosely to the frame. By putting a slight pressure on the outer end of the lever, it will present a similar movement upon the screen.

*A. T.* (Newington).—The same general arrangement as that mentioned in article *re* "Binocular Lanternescope" will answer so long as you have an unobstructed view to the extremity of picture; in other words, make the outer end of the box portion the size of picture.

*M. Lowe.*—We have inserted the first portion of your letter under "Correspondence." If the soft lines will not stand the heat, by all means employ a harder kind.

*A. Saunders*—Erect opaque wings at sides at right angles to the screen; or perhaps you could place the screen in one of the corners of hall. A great deal depends upon the number of the windows, and their distance from the place where you intend erecting the screen. Shall be pleased to have an account of how you got on at the Board Schools, using the lantern in the middle of the afternoon.

*J. D.* writes: (1) "Would you or any of your readers kindly say whether there has been any trouble with Scott's saturator, when the specially-protected jets, which Mr. Scott advertises, have been used?" (2) "Whether, on the whole, the saturator is to be recommended to one just beginning to use gas?" *Answer.*—(1) We have not used the new protected jet yet. Perhaps some of our readers may give us the results of their experience with the jets containing cotton-wick damped with glycerine. (See February issue, p. 15.) (2) Much has been written both for and against saturators. (See index to past Vol., also an article in this issue from India.)

*Arthur Brown.*—You will find particulars in Mr. Mason's advertisement, on page iv. We have asked him to supply the information direct.

*R. D. Williams* writes respecting Mr. E. H. Stevenson's compact lantern, which was described in last issue: "It is just what is wanted in a place like this (Carnarvon), where the roads are bad, and the lantern, &c., have to be carried in hand for long distances."

*A. B. Spawforth* writes: (1) "Can you tell me where I could procure two 3¼in. slides (one round and one cushion-shaped mats) with printed matter for testing the definition of lenses with?" (2) "Does the light given by ether saturators *ever* equal that given by a mixed jet?" *Answer.*—(1) Mr. Norton, of 28, Marchmont-street, Russell-square, London, W.C., has introduced an effective slide, consisting of fine Brussels net between two glasses, which is excellent for testing lenses, and it has an advantage over printed matter. (2) Yes.

*J. Christie.*—Replied by post.

*W. J. F.* writes: "What is the advantage to be gained by using larger objectives on a lantern than the commercial one of 2in. diameter? *Answer.*—You will find this matter treated upon in our issue of November, 1890, pages 48, 49, and 50.

*Pressure.*—(1) The valve of cylinder should only be screwed down with sufficient force to close it. Valves are often ruined by forcing them too tight. (2) The nut acts on the packing. (3) We cannot give a sketch at present, but may, perhaps in a short time. The principle is somewhat similar to a screw-down water or steam tap; but the valve-pin is cone-shaped.

*Inquirer.*—The cause of the second light popping out (with six-way dissolver) when first dissolving, half an hour after lighting up, must be due to a slight admixture of gas caused by a leak at the plug of the dissolver. Remove this, clean, and apply a touch of vaseline.

*H. B. H.*—(1 and 4) It will be infinitely less trouble to take the bag to your gas works than making hydrogen from sulphuric and zinc yourself. (2) You can dissolve with the oxy-calcium light. See Oct. issue for 1889. (3) No; unless you include oxy-calcium. (5) The Pamphengos can be used with lime-light without alteration.

*Arms.*—You do not give many particulars, but if you remove the plug of dissolver and give it a touch with vaseline, the probability is that it will be all right; it is evident that one gas leaks into the other.

*J. P.*—(1) Blow through jet. (2) From our advertiser's. (3) Yes. (4) Try Clarkson, see advert. (5) Birmingham is the headquarters for their manufacture.

* * *

COPIED as transparencies, strong vigorous woodcuts afford better photographic slides than choice steel or copperplate engravings, and the reason is that the fine lines and clusters of minute dots become, when greatly enlarged, semi-transparent; or, at least, the multitude of weak shadows of which the picture is composed still lose intensity by aberration.—*E. B. Fennessy.*

* * *

"*The Optical Magic Lantern Journal* so ably edited by J. Hay Taylor, is full of valuable information regarding the optical lantern and kindred subjects. No exhibitor can afford to be without this publication if he wants to keep abreast of the times. The same applies to the amateur photographer who is at the same time a lanternist."—*American Journal of Photography.*